

## ABSTRACT

Disclosed is an apparatus and a method for generating a preamble sequence in an orthogonal frequency division multiplexing (OFDM) communication system having  $m$  subcarriers in a frequency domain. The method comprises grouping the  $m$  subcarriers by  $n$  subcarriers, where  $n$  is less than  $m$ , so as to generate  $p$  subchannels; and assigning null data to subcarriers except the  $n$  subcarriers assigned to the subchannels, assigning data of a given sequence to at least one subchannel selected from the  $p$  subchannels, assigning null data to 10 subchannels not selected from the  $p$  subchannels, and thereafter performing inverse fast Fourier transform (IFFT) for transforming the data into time-domain data.